DOCUMENT RESUME

ED 334 587 CS 212 956

| | |
|---|---|
| AUTHOR | Hayes, John R. |
| TITLE | Peeking Out from under the Blinders: Some Factors We Shouldn't Forget in Studying Writing. Occasional Paper No. 25. |
| INSTITUTION | Center for the Study of Writing, Berkeley, CA.; Center for the Study of Writing, Pittsburgh, PA. |
| SPONS AGENCY | Office of Educational Research and Improvement (ED), Washington, DC. |
| PUB DATE | Feb 91 |
| CONTRACT | RI17G00036 |
| NOTE | 21p. |
| PUB TYPE | Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Information Analyses (070) |
| EDRS PRICE | MF01/PC01 Plus Postage. |
| DESCRIPTORS | Elementary Secondary Education; Higher Education; *Research Design; *Research Methodology; Research Problems; *Writing Processes; *Writing Research |
| IDENTIFIERS | Research Suggestions; Text Factors |

ABSTRACT

Researchers and educators sometimes need to be reminded of the broad range of factors which have a crucial impact on how writers write. This paper offers a personal checklist of six factors which have been shown to be important, yet which are easy to forget in in heat of research because of the tendency to become immersed in a particular agenda and to circumscribe too narrowly what is judged to be interesting. The six factors are: (1) task definition; (2) perceptual skills; (3) spatial aspects of text; (4) the physical environment; (5) cultural context; and (6) social context. A detailed review of each factor is given, in the course of which some salient points are made, among them that experienced writers and inexperienced writers approach revision differently, that writers must be able to perceive problems to fix or avoid them, and that the human environment has enormous impact on writing. (Six figures are included and 25 references are attached.) (SR)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED 326 457
CS 212 956

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

# Center for the Study of Writing

Occasional Paper No. 25

## PEEKING OUT FROM UNDER THE BLINDERS: SOME FACTORS WE SHOULDN'T FORGET IN STUDYING WRITING

John R. Hayes

February, 1991

University of California, Berkeley
Carnegie Mellon University



BEST COPY AVAILABLE

# CENTER FOR THE STUDY OF WRITING

Occasional Paper No. 25

# PEEKING OUT FROM UNDER THE BLINDERS: SOME FACTORS WE SHOULDN'T FORGET IN STUDYING WRITING

John R. Hayes

February, 1991

University of California
Berkeley, CA 94720

Carnegie Mellon University
Pittsburgh, PA 15213

*The publication of this report was funded by grant number R117G00036 from the Office of Educational Research and Improvement, U.S. Department of Education (OERI/ED) for the National Center for the Study of Writing and Literacy. However, the opinions expressed herein do not necessarily reflect the position or policy of the OERI/ED and no official endorsement by the OERI/ED should be inferred.*

## CENTER FOR THE STUDY OF WRITING


| | |
|---|---|
| Director | Sarah Warshauer Freedman, *University of California, Berkeley* |
| Co-Directors | Anne Haas Dyson, *University of California, Berkeley*<br>Linda Flower, *Carnegie Mellon University*<br>James Gray, *University of California, Berkeley*<br>J. R. Hayes, *Carnegie Mellon University* |
| Associate Director | Sandra R. Schecter, *University of California, Berkeley* |
| Editor | Andrew Bouman, *University of California, Berkeley* |

**Publication Review Board**

| | |
|---|---|
| Chair | Janis L. Patch, *University of California, Berkeley* |
| Assistant Chairs | Rebecca E. Burnett, *Carnegie Mellon University*<br>Anne DiPardo, *University of California, Berkeley*<br>David L. Wallace, *Carnegie Mellon University* |
| Advisors | Charles Fillmore, *University of California, Berkeley*<br>Jill H. Larkin, *Carnegie Mellon University* |

Millie Almy, *University of California, Berkeley*
Carla Asher, *Herbert H. Lehman College of the City University of New York*
Nancie Atwell, *Boothbay Region Elementary School, Boothbay Harbor, ME*
Robert de Beaugrande, *University of Florida*
Carol Berkenkotter, *Michigan Technological University*
Ruby Bernstein, *Northgate High School, Walnut Creek, CA*
Lois Bird, *Whole Language Consultant, Palo Alto, CA*
Sheridan Blau, *University of California, Santa Barbara*
Wayne Booth, *University of Chicago*
James Britton, *University of London*
Michael Cole, *University of California, San Diego*
Colette Daiute, *Harvard University*
John Daly, *University of Texas, Austin*
JoAnne T. Eresh, *Writing and Speaking Center, Pittsburgh, PA*
Celia Genishi, *Ohio State University*
Donald Graves, *University of New Hampshire*
Robert Gundlach, *Northwestern University*
James Hahn, *Fairfield High School, Fairfield, CA*
Anne J. Herrington, *University of Massachusetts*
George Hillocks, *University of Chicago*
Sarah Hudelson, *Arizona State University*
Julie Jensen, *University of Texas, Austin*
Jo Keroes, *San Francisco State University*
Janice Lauer, *Purdue University*
Andrea Lunsford, *Ohio State University*
Susan Lytle, *University of Pennsylvania*
Ann Matsuhashi, *University of Illinois at Chicago*
Marty Nystrand, *University of Wisconsin*
Lee Odell, *Rensselaer Polytechnic Institute*
Sondra Perl, *Herbert H. Lehman College of the City University of New York*
Gordon Pradl, *New York University*
Victoria Purcell-Gates, *University of Cincinnati*
Charles Read, *University of Wisconsin*
Victor Rentel, *Ohio State University*
William Smith, *University of Pittsburgh*
Jana Staton, *Center for Applied Linguistics, Washington, DC*
Michael W. Stubbs, *Universität Trier, Germany*
Deborah Tannen, *Georgetown University*
Betty Jane Wagner, *National College of Education*
Samuel D. Watson, *University of North Carolina*
Gordon Wells, *Ontario Institute for Studies in Education*

# PEEKING OUT FROM UNDER THE BLINDERS: SOME FACTORS WE SHOULDN'T FORGET IN STUDYING WRITING

John R. Hayes
Carnegie Mellon University

I am writing this essay for researchers and educators like myself as a reminder of the broad range of factors which have crucial impact on how writers write. I believe that such a reminder is useful because as we become more and more deeply absorbed in our research agendas our focus of attention tends to narrow. Our interests build empires, subjugating neighboring areas, and surrounding them with high walls which separate the "interesting" from the "not interesting." This process can lead us systematically to ignore some very important topics which we may not see as important because they do not fit neatly into our current preoccupations.

In an attempt to combat this narrowing of focus, I am proposing a checklist of six rather diverse factors, each of which has been shown empirically to have an important impact on writing performance. If the reader were to object that I have picked the wrong six factors, I would have no defense. There may well be a better list. I picked these six because I found them interesting and because I have ignored some of them or been surprised by them in my own research.

## Factor 1: Task Definition

Usually, when we are conducting a study, our attention is focused squarely on a variable we want to investigate, say the age or social background of the writer or the impact of a training procedure. We take care to select writing tasks which we believe can demonstrate the effects of the variable, but we don't focus on the tasks. We view the tasks as means rather than ends. When we get our results, we are predisposed to attribute differences in performance to differences in skill associated with the variable of interest or to changes in skill resulting from the training procedure. We usually do not think to attribute them to differences in the way the participants interpret the task. This is because we tend to assume that there *are* no differences in the tasks. After all, as the designers of the study, we very likely intended that all participants would do the same task. In expert-novice studies, for example, we compare writers who differ in experience and typically attribute differences in performance to differences in skill. Inferences of this sort may be hazardous, however, since there is good reason to believe that more and less skilled writers may differ systematically in the way they define the writing tasks to be performed. Thus, differences in writing performance might result from differences in task definition, that is, what the writers think they are supposed to do, rather than from differences in the ability to do the task. In this section, I will first discuss evidence that writers who differ in experience do define important writing tasks differently. Then I will discuss evidence that training procedures may change the writer's task definition.

A number of researchers have reported marked differences in the way experienced and inexperienced writers approach revision. There is considerable evidence that less experienced revisors focus their attention far more locally than do more experienced revisors. Stallard (1974) found that only 2.5% of 12th graders' revisions were focused above the word and sentence level. Bridwell (1980), who also studied 12th graders, found about 11% of revisions above the sentence level.

Sommers (1980) found that college freshmen understand the revision process as a rewording activity, that is, they concentrate on particular words apart from their role in the

text. In contrast, experienced writers, e.g., journalists, editors, and academics, describe their primary objectives when revising as finding the form or shape of their argume .... Further, Sommers found that the experienced writers have a secondary objective; a concern for their readership.

Faigley and Witte (1983), who studied writers at various skill levels, found that experts were more likely to change meaning through revision than were novices. They observed that the revisions of inexperienced college writers resulted in changed meaning in 12% of cases; the revisions of experienced college writers, in 25% of cases; and the revisions of experienced adult writers, in 34% of cases.

Hayes et al. (1987) found that experts and novices differed systematically in their implicit definitions of the revision task. Experts defined revision as a whole-text task. They tended to read the whole text through before beginning revision and created global goals to guide the revision process. Novices, in contrast, saw revision largely as a sentence-level task in which the goal was to improve individual words and phrases without modifying the text structure.

Bereiter and Scardamalia (1987) have described differences in task definition which are broader in scope than those described above. They have proposed two general models of the writing process: *knowledge telling*, which characterizes writing processes most usually found in immature writers, and *knowledge transforming*, which characterizes writing processes most frequently found in adults and more sophisticated students. In knowledge telling, the writer defines the task of writing as one of reporting knowledge that is relevant to the topic. Thus, the writer who is assigned a topic such as "Should girls and boys play on the same sports teams?" will search memory for information suggested by key words in the topic, e.g., "girls," "sports," etc., evaluate the relevance of the retrieved information, and then write down whatever retrieved information is judged relevant. Bereiter and Scardamalia (1987, page 9) quote a 12-year-old student describing his own composition process as follows:

> "I have a whole bunch of ideas and write down until my supply of ideas is exhausted. Then I might try to think of more ideas up to the point when you can't get any more ideas that are worth putting down on paper and then I would end it."

This procedure is simple and effective for many school assignments and for many of the less complex tasks in the adult world as well.

In contrast to knowledge telling, in which writers write down any information which is judged relevant, knowledge transforming writers define the task of writing as involving the modification of the retrieved information for the purposes of the essay. Retrieved information is reworked to fit with what has been written and what the writer plans to write. What is written, then, is not just what the writer knows but new thoughts as well—thoughts stimulated by the process of writing.

These examples illustrate that writers do differ in their definitions of important writing processes. The interesting possibility is that perhaps we can improve students' writing performance simply by encouraging them to adopt more appropriate definitions of writing tasks. However, it may be that differences in the way writers define tasks simply mirror differences in underlying abilities. Perhaps the junior high school student who defines writing as knowledge-telling or the freshman who defines revision as a sentence-level task can't write or revise in any other way. Empirical work by Scardamalia and Bereiter and their colleagues (Bracewell, Scardamalia, & Bereiter, 1978; Burtis, Bereiter,

Scardamalia, & Tetroe, 1983) suggests that young writers may, in fact, lack sufficient control over their writing processes to allow them to be successful knowledge transformers. This may not be the case for adult writers, however. Observations by Nelson and Hayes (1988) indicate that college writers can and do modify their definitions of writing tasks to suit the circumstances. For example, a bright college senior, planning a history paper, commented that she could take either of two paths in composing the paper. The easier path involved summarizing her sources and "just shoving in quotes." She would then "tack on some sort of analysis in the last paragraph." The harder path involved analysis of the conflicting accounts to reveal biases and hidden motives in the sources. Her motive here was to get closer to the truth than a simple reporting of the source information would allow. While this student eventually chose the easier path (because she was "just a science student, not a history major"), she clearly understood that she had the option of transforming knowledge rather than just telling it.

I am really making two points here. First, groups *do* differ in the way they define important writing tasks. Thus, some of the differences in performance which we might attribute to differences in skill may in fact be due to differences in task definition. Second, in some cases at least, task definitions are malleable. That is, some writing performances can be improved simply by making clear to the writer what it is that we want them to do. Nelson and Hayes (1988) provide clear evidence supporting this point. (The evidence is discussed below in the section on Social Context.)

Training procedures are intended to improve skills, but they can also have the unintended effect of changing task definition. In evaluating a training procedure, then, we run the risk of confusing increases in skill with changes in task definition. A very insightful study by Smith and Combs (1980) illustrates the point dramatically. At the time Smith and Combs designed their study, there was substantial evidence that a semester's worth of training in sentence-combining increased the semantic complexity of students' writing as measured by mean words per T-unit and mean words per clause (Mellon, 1969). Further, it was believed, and, indeed, it may be true, that the increased semantic complexity reflected increased linguistic skill imparted by training. However, Smith and Combs wondered if the increase in complexity might have another cause. Perhaps the changes in performance resulted from covert cues in the training process which told the students that the task was not just "to write an essay" but rather "to write an essay with long and complicated sentences." To test this hypothesis, Smith and Combs compared three conditions. In the overt cue condition, students were told that the reader of the essay would be a highly intelligent person who is influenced by long and complex sentences. In the covert cue condition, students were given two days of sentence-combining exercises. Smith and Combs regarded two days of training as sufficient to provide cues about how the writing task should be defined, but not sufficient to change skills significantly. In the control condition, students were simply told to write. Results indicated that both the overt and the covert cue conditions resulted in increases in syntactic complexity comparable to those obtained by Swan (1977) and by Morenberg (1978) through a semester of training in sentence-combining.

The important principle to be derived from the Smith and Combs study is that it is easy to confuse an increase in skill with a change in the way the student defines the task to be performed. When we think that we have a procedure that teaches people a new writing skill, we should always consider comparing the training groups to a control group that receives no training, but is asked to try to perform in the way we want the training group to learn to perform. To the extent that "just asking" succeeds, we know that the participants already had the skills we were trying to teach but defined the writing task in a way that didn't reveal them.

For some writing tasks and for some populations of writers, then, a direct approach to changing writers' task definitions does seem promising. For example, I suspect that freshmen revisors could revise globally if they knew that that was the task they should do. An important objective for researchers and educators, then, is to identify populations of writers whose performance on specific writing tasks could be improved by instruction in appropriate definition of the tasks.

**Factor 2: Perceptual Skills**

In teaching writing, we focus so much on strategies and rules that we tend to ignore perceptual skills that underlie skilled writing performance. While knowledge of topic and genre, a repertoire of strategies, and, indeed, appropriate task definitions are extremely important for skilled performance in writing, I want to argue that this list is not complete because in addition, the writer needs a repertoire of perceptual skills, skills required to recognize problems in the text such as lack of focus, clarity, wordiness, poor diction, etc. These skills are essential for the control of the writing process. Writers must be able to perceive problems if they are to fix them or avoid them.

Our revision studies (Hayes et al., 1987) showed that freshmen may be persistently insensitive to problems that more experienced writers would detect easily. For example, one freshman, revising for a freshman audience, read the following sentence four times without finding fault with it. The sentence was "Many naive women posses the assumption that it is necessary to be very skillful to play on varsity teams." On his final reading, he said, "Good! Freshmen would like that." This sort of insensitivity to text problems presents a major difficulty for composition teachers. It is hard to teach students to avoid pitfalls which they can't see.

The best example of a study which focuses on the teaching of perceptual skills was conducted by Schriver (1987). The objective of this study was to determine if training could increase writers' ability to detect aspects of texts which confuse readers. Prior to her teaching study, Schriver created a training text (Schriver, 1984) consisting of ten two-part lessons. Each lesson contained:

1. *A "problematic" first draft of a text,* i.e., one that will give the intended audience difficulties in understanding it. These draft texts did not contain spelling and grammatical errors, but rather had poor definitions, unclear procedures, missing examples, ambiguities, and other "above the word or phrase" level problems. All were written for lay readers.

2. *A reader protocol of a person trying to understand the draft text.* For each of the ten texts, a "thinking aloud" protocol was collected from a member of the actual audience in the process of trying to understand the text. The protocols revealed a wide variety of understanding problems.

To evaluate the effectiveness of these training materials, Schriver (1987) used a pretest-posttest design. In pretest and posttest, the participants' task was to predict those aspects of a set of texts that would create comprehension problems for the reader. The pretest and posttest materials consisted of six half-page passages that were excerpted from the "science" and "medicine" sections of *Time* and *Newsweek* magazines. To determine the accuracy of the writers' predictions of reader problems during pretest and posttest, it was necessary to determine exactly what problems the stimulus texts created for readers. To identify the problems, Schriver collected reading protocols from 30 freshmen trying to understand each of the six texts.

The participants who received training were college juniors and seniors enrolled in ten intact classes in professional writing. Five classes served as the experimental group and five as the control group. Writers in the experimental group were trained with the reader protocol materials over a period of three weeks. Writers in the control group were trained in traditional audience analysis heuristics and peer response methods.

The results of the study were quite dramatic. Figure 1 shows the hit rates (the mean number of times participants correctly predicted a reader problem) for experimental and control groups on pretest and posttest. After training, the experimental group correctly identified significantly more reader problems than before (62% more) while the pretest differences between experimental and control groups and the pretest-posttest differences for the control group were not significant.

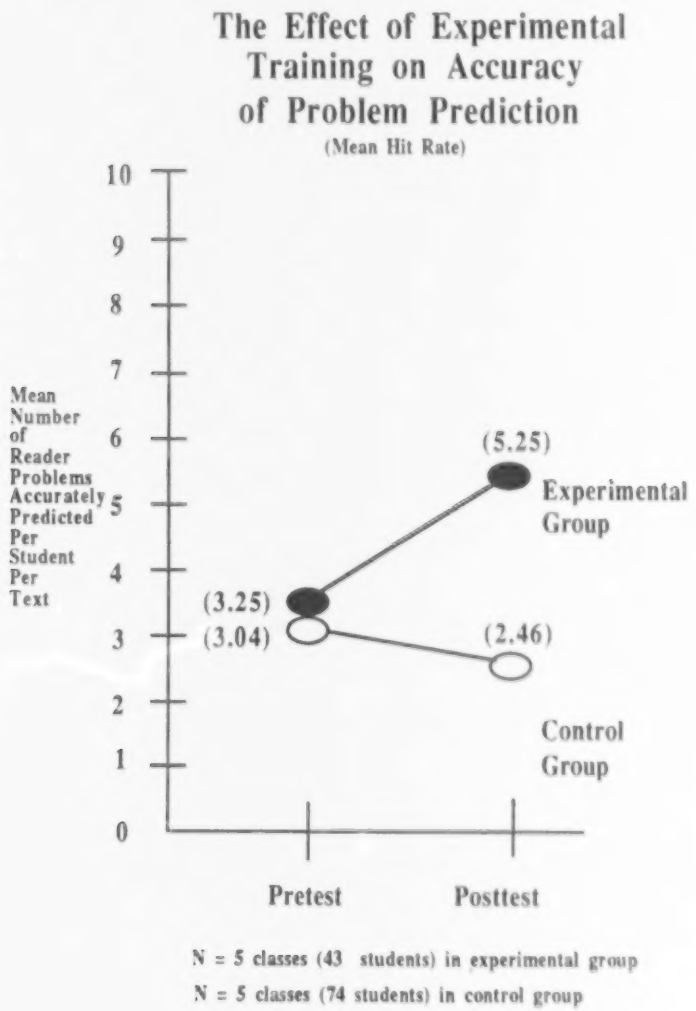


**Figure 1. Accuracy training hit rates.**

Schriver's method, then, proved quite successful in teaching writers to detect text features which will cause problems for the reader. One can imagine that the method has considerable promise not just for writers, but for training audience sensitivity more generally, e.g., for training speakers how their talks will be received and for training literature teachers how their students will respond to assigned texts.

Attention to perceptual skills is important because they are critical in the control of writing processes. If writers don't perceive that their texts lack focus or suffer from wordiness, they won't do anything to solve these problems. The success of Schriver's method suggests that research on and teaching of perceptual skills can have important payoffs.

**Factor 3: Spatial Aspects of Text**

Discussions of writing tend so strongly to focus on linguistic and rhetorical features that one is surprised to encounter evidence of spatial features. My first such surprise was provided in a very clever study by Rothkopf (1971). Rothkopf demonstrated that when people read text, they often remember the spatial location of information that they have read, e.g., "On top of the right hand page about a third of the way through the book."

Spatial factors also turned up in a study of paragraphing (Bond & Hayes, 1984). In the study, readers were presented with unparagraphed texts and asked to add paragraphing where appropriate. The texts included normal English texts as well as texts which had various categories of words, e.g., nouns, function words, replaced by nonsense words or by x's. Our objective was to identify the semantic and linguistic features of the text which cued writers to insert paragraphing. As a natural extension of the sequence of text mutilations described above, we designed a "control" text in which sentences were replaced by wiggly horizontal lines. Only the beginnings and endings of sentences were preserved in this condition. We expected that with all the lexical and semantic cues removed, participants would be unable to agree as to how the text should be paragraphed. To our surprise, participants agreed with each other in paragraphing the text significantly better than could be expected by chance. We had to conclude that there is a spatial component in paragraphing which can operate independent of linguistic and semantic factors.

Spatial factors also turned up unexpectedly in a series of studies about how people use word processing in writing (Haas & Hayes, 1987). The first study of the series was an interviewing study of sixteen experienced computer writers. Almost all of these writers routinely used hard copy printouts at some point in the writing process. When asked why they used hard copy, their most frequent response was that they wanted to get a "better sense of the text." In many cases, the writers used spatial metaphors to describe what they meant by "text sense." For example, one writer said, "I need a hard copy to feel the text's center of gravity." The remaining studies in the series were designed to identify ways in which hard copy might give the writer a better "sense of the text." Recalling the Rothkopf study discussed above, we designed an experiment which measured readers' ability to remember the spatial location of information when it was presented either in hard copy text or in comparable computer screen displays. Participants were asked to read several pages of information either on computer screen or in hard copy. (Computer screens and hard copy pages contained the same number of lines of text and the same number of words per line.) Then the participants were provided with blank pages or screens (depending on whether they had read the text from pages or screens) and asked to point to the locations at which they had read several items of information. We found that readers were significantly better at remembering the location of information when it was presented in hard copy than when it was presented on the computer screen.

In a follow-up experiment, participants were asked to read a text and then to answer questions which required them to search for and retrieve information from the text. As was predicted from the results of the previous experiment, participants took longer to retrieve information when the text was presented on the computer screen than when it was presented on paper.

In a second follow-up experiment, participants were shown texts which had been altered by moving several text lines from their original locations to new locations in the text. The task was to reorganize the text by identifying these lines and their appropriate locations. Significantly less time was required to reorganize texts when they were presented in the paper condition than in the computer condition.

These studies indicate that spatial factors can be important to the readers of a text and they may, presumably together with semantic factors, be involved in what writers call "getting a sense of the text." When we write we lay words out in space. We should be alert to the effects that this spatial array has on us as readers and as writers.

**Factor 4: The Physical Environment**

Some writers have reported very strong preferences about the physical environment in which they write—preferences for particular writing instruments, particular rooms, and particular times of day (see, for example, Wason [1980]). However, no systematic data has been collected to determine the practical importance of these idiosyncratic preferences. The widespread use of the computer as a new and radically different writing instrument has led to increased interest in the impact of physical environment on writing. Some, like Daiute (1983), have described this impact in very largely positive terms. Clearly, word processing provides many useful tools for the writer. However, since word processing systems are occupying an increasingly important role in educational and industrial settings, it is important to have a good understanding of the impact these systems have on the writing process.

Haas (1987) has investigated the planning processes of writers who were composing with computer or pen and paper. She collected thinking aloud protocols from ten students and ten experienced writers, each of whom composed an essay using only computer and another using only pen and paper. Haas divided the protocols into clause units and identified those clauses which reflected planning activities. While experienced writers planned much more than students, both groups showed a greater proportion of planning clauses to total clauses in the pen and paper condition than in the computer condition. Further, writers planned more before starting to write in the pen and paper condition than in the computer condition. These results are shown in Figure 2.

| | Condition | |
|---|---|---|
| | pen and paper | computer |
| Number of planning clauses in protocol divided by total clauses in protocol | .339 | .272 |
| Proportion of planning clauses in protocol which occur before anything is written | .426 | .283 |

**Figure 2. Planning clauses in protocols.**

In addition, Haas found that the kind of planning that the writers did was influenced by the instrument they used to write. Haas divided planning clauses into several categories including those concerned with sentence level issues, e.g., proposing wording for sentences, and those concerned with conceptual issues, e.g., "Let's see . . . I need to tie this all together in a concluding paragraph." Haas found a significantly higher proportion of sentence level plans and a significantly lower proportion of conceptual plans when writers used the computer than when they used pen and paper. Mean proportions of total planning clauses are shown in Figure 3.

| | sentence level | | conceptual | |
|---|---|---|---|---|
| | pen | computer | pen | computer |
| expert | 27.9 | 36.9 | 66.2 | 53.7 |
| novice | 22.4 | 35.4 | 69.4 | 50.2 |

**Figure 3. Proportions of low and high level plans.**

In summary, then, Haas found that when writers wrote with a computer they planned less overall, planned less before beginning to write, and planned less at a conceptual level than when they wrote using pen and paper. These findings are clearly of great importance for education and practice in writing. Further research is very definitely in order.

Writers who work with word processing systems, of course, are not constrained to do their writing entirely on the computer. In fact, a study of sixteen experienced computer writers by Haas and Hayes (1986) showed that nearly all of these writers made some use of hard copy while composing. To determine what it was that writers were using the hard copy for, Haas (1987) studied six freshmen and five experienced writers over a four month period. During that time, the writers were asked to keep process logs when they used word processors to write. They were asked to note especially when they used hard copy and what they used it for. In addition, they were observed while writing in their natural environments. Haas found four major uses of hard copy:

1. *Formatting*. In many word processing systems, the screen format is different from the hard copy format so writers have to check the hard copy to see how the final product will look.

2. *Proofreading*. Many writers found it easier to search for spelling and punctuation problems with hard copy than online.

3. *Reorganizing*. Writers expressed a need to examine hard copy to assure themselves that reorganizations done online had had the desired effect on the text.

4. *Critical reading*. Many writers felt that they could not adequately evaluate the development of their text or "get a sense of the text" unless they read it in hard copy.

Haas found that the distribution of these uses of hard copy by experienced writers was quite different from the distribution for freshmen, as is shown in Figure 4. Freshmen were much more likely to use hard copy to check format and spelling, while more experienced writers were more likely to use it to evaluate organization and meaning.

Uses of Hard Copy

| | Students | Experienced Writers |
|---|---|---|
| Formatting | 75% | 31% |
| Proofreading | 13% | 9% |
| Reorganization | 8% | 21% |
| "Text Sense" | 4% | 39% |

**Figure 4. Use of hard copy by students and experienced writers.**

Haas divided data for the experienced writers into two sets: one set for "long" texts and one set for "short" texts. The distribution of hard copy use for the short texts resembled that for novice writers, while the distribution for long texts resembled that for the experienced writers. The use of hard copy to evaluate organization and meaning then appeared to be restricted to long texts.

### Cultural and Social Contexts

The human environment has enormous impact on writing. After all, writing has no point outside of the human environment. I have chosen, rather arbitrarily, to focus here on two aspects of the human environment: the cultural context and the social context. By cultural context, I refer to those persistent beliefs and practices which distinguish one group from another, e.g., the French from the Italians, or working class from upper class. By social context, I refer to the within-culture effects of the people who interact with the writer—the teachers or employers who set goals for the writer and may pass judgment on the resulting text, and the friends and peers who may provide suggestions and comments while writing is in progress.

### Factor 5: Cultural Context

Culture is an important context for many aspects of human behavior and it seems especially important for linguistic behaviors. When we ignore other cultures, we run a risk close to certainty of interpreting our own cultural choices, e.g., the role of literacy in western culture, as reflecting "human nature." Also, we run a high risk of assuming that what we see in our culture is all there is to see. As Alan Purvis has pointed out (1987), European educational practices are different from American practices and the differences are instructive. For example, he notes that while American writing assignments are typically limited to 50 minutes, European students are often required to produce a finished essay in 3 hours. We might assume, as indeed I have in designing writing studies, that students would be incapable of writing effectively for more than an hour or so, but European experience seems to indicate that this assumption is false.

For many researchers, perhaps for most, limitations of time and resources make it difficult for them to be actively involved in conducting cross-cultural studies. As a result, the narrowing of focus which comes from becoming absorbed in our own work is especially likely to lead us to ignore the importance of cultural context.

The effects of culture are seen quite clearly when individuals must switch between cultures as do some black children attending a predominantly white school system. Such students learn to adjust their linguistic behaviors to the demands of the current culture. Dell Hymes (1971) illustrates this point by quoting a black mother who said, "You know, I've noticed that when the children play 'school' outside, they talk like they are supposed to in school; and when they stop playing school, they stop." If we observed the children described by Hymes in just one cultural context, whether it be the street or the school or the laboratory, we might not see the full range of language skills that they have available to them.

An interesting study by Stevenson, Lee, Stigler, Hsu, Lucker, and Kitamura (1987), comparing Chinese, Japanese, and American classrooms, illustrates the importance that cultural factors can have for education in mathematics and language arts. The Stevenson et al. study was done in the context of widespread observations that American students perform much more poorly on tests of mathematical computation and problem solving than do Asian students (Crosswhite, Dossey, Swafford, McKnight, & Cooney, 1985). There are also indications that Asian students outperform their American

counterparts in language skills as well, but the differences are less dramatic than those in mathematics (Stigler, Lee, Lucker, & Stevenson, 1982). While some have claimed that these differences in performance are due to differences in innate ability (Lynn, 1982), research has failed to support this claim (Stevenson & Azuma, 1983). To provide information which might account for the observed differences in performance, Stevenson et al. (1987) conducted a very careful study of teacher and student behaviors in a representative sampling of Japanese, Taiwanese, and American first- and fifth-grade classrooms. They found several striking cultural differences in the educational practices of the three countries.

*Time in School:* Children in Taiwan and Japan spend more time in school than American children do. While first graders in all three countries spend about the same amount of time in school each week (about 30 hours), differences appear in the later elementary grades. In fifth grade, American students spend about 31 hours per week in school; Japanese students, about 37 hours per week; and Chinese students about 44 hours per week. Further, the American school year is about three quarters the length of the school year in Japan and Taiwan (170 to 180 days in the U. S. as compared to 230 to 240 days in Japan and Taiwan.)

*Efficiency:* Class time is used more efficiently in Chinese and Japanese schools than it is in the U. S. in the sense that Chinese and Japanese students spend a larger portion of their class time engaging in academic activities than do American students. Americans spend more time out of class (attending but not in class) and more time in transitional activities, e.g., putting books away, waiting for feedback, etc., than did the Asian students. Figure 5 shows the percent of class time and the estimated total hours per week that children were engaged in academic activity for each grade and each country.

| | American | Japanese | Chinese |
|---|---|---|---|
| First Grade | 20.9 | 23.4 | 24.3 |
| Fifth Grade | 19.6 | 32.6 | 40.4 |

**Figure 5. Hours per week students were engaged in academic activities**

*Classroom organization:* Chinese and Japanese classrooms are much more teacher-focused than American classrooms. Students in Taiwan and Japan spend much more time working together as a class than they do working in small groups or as individuals while students in the U. S. spend more time working alone than they do working as a class. American children worked on individual activities 47% of the time; Japanese students, 28% of the time; and Chinese students, 18% of the time. Corresponding to these differences, American teachers spent less time imparting information (21%) than did the Japanese (33%) or the Chinese (58%) teachers. One might argue that the greater emphasis on individual activities is a strength of American schools. However, one should note that within the American schools, Stevenson et al. found strong and significant negative correlations between the amount of time students work alone and achievement in reading ($r = -.69$) and in math ($r = -.57$).

*Distribution of class time by subject:* American schools devote a much larger proportion of class time to teaching language arts (41.6%) than to teaching math (18%). In contrast, Chinese and Japanese schools devote about equal time to these two subjects (24-

28%). Figure 6 shows Stevenson et al.'s estimates of the numbers of hours of instruction delivered per week in each subject and each school system. These results indicate that American schools are delivering much less instruction in mathematics per week than are Japanese and Chinese schools (less than half as much in fifth grade). Because of the greater length of the Asian school year, these differences would be even more striking if we computed hours of instruction delivered per year.

| | American | Japanese | Chinese |
|---|---|---|---|
| First Grade | | | |
| Language Arts | 10.5 | 8.7 | 10.4 |
| Mathematics | 2.7 | 5.8 | 4.0 |
| Fifth Grade | | | |
| Language Arts | 7.9 | 8.0 | 11.1 |
| Mathematics | 3.4 | 7.8 | 11.7 |

**Figure 6. Hours of instruction delivered per week**

These results suggest strongly that the relatively poor performance of American versus Asian students could result from cross-cultural differences in educational practice; in particular, differences in classroom organization and in the number of hours of instruction delivered. It is interesting that one of the few areas in which Japanese education is not strong, written composition (Kinosita), is currently a source of concern to Japanese computer manufacturers. Apparently Japanese companies have lots of employees who can design, build, and program computers, but relatively few who can write clear instructions to customers about how to use them.

**Factor 6: Social Context**

Britton et al. (1975) have emphasized the importance of social context in writing. As a demonstration of the impact of the student writer's social environment, they point to

> . . . the change which comes over adolescent pupils' writing when it is genuinely directed to a peer-audience. Our research has revealed how dramatic this change is.
>
> If we look more closely at the context of situation we see that almost all the writing with which we are concerned is in the school domain. The act of written communication in this domain is in many ways unlike other similar acts even when they are apparently identical. . . . In school, however, the context is one in which this undertaking will be taken as an 'exercise,' . . . In this context, . . . [the pupil's] audience will overwhelmingly be predetermined and sharply defined: the teacher, a known audience of one. (p. 63)

Laboratory studies of writing typically do not explore issues of social context. Of course, laboratory studies *have* a social context. The social relation between experimenter and participant is a rather special one as Rosenthal (1975) has shown. However, the impact of social context is rarely the focus of laboratory studies of writing. This is not to say that such studies are without value as some have asserted, e.g., Graves (1980). Laboratory studies are often the most effective way to answer certain kinds of questions.

Clearly, laboratory studies such as those of Rothkopf (1971) on spatial memory for text and Haas' studies of writing with word processors yield very valuable information. However, when the researcher's focus is on social context, then ethnographic studies, case studies, and experimental studies in natural contexts seem generally preferable to laboratory studies.

In a series of experimental and case studies of students writing in natural college environments, Nelson and Hayes (1988) have shown that the social context can shape the writing process in dramatic ways. The authors selected a random sample of eight students in classes which had been assigned to write research papers. These students were asked to keep daily logs of all of the activities involved in writing their assigned papers, e.g., library research, planning, and conversations with peers, as well as the actual production of text. The diaries were collected by the researchers at least every other day.

The results indicated that the students differed markedly in their approaches to the assignments, falling into two general groups, one group who employed a "low-effort" strategy and the other group, a "high-effort" strategy. The following are the key features of the low-effort strategy:

1. Students didn't start work on their papers until one to three days before the paper was due.

2. Topic choice was based on the easy availability of information rather than on the student's personal interest in the topic.

3. Students made one trip to the library. Once writing began no further sources were examined. Thus, the information collected during this one trip determined what the paper could be about.

4. Students summarized and paraphrased sources page by page and one source at a time.

5. Writing, which was accomplished in one or two sittings, consisted of arranging chunks of notes, each chunk corresponding to a source text. There was little or no global revision. Most revision involved changes at the word or sentence level.

6. Students disliked writing the assigned paper, describing it as "boring," "tedious," and "busy work."

The following features of the high-effort strategy contrast sharply with those of the low-effort strategy:

1. Students started work on their papers three weeks to one month before the due date.

2. Topics were chosen on the basis of personal interest.

3. Students returned to the library an average of five times. Searching for information often included "broad background reading" not accompanied by note taking.

4. Notes were typically organized around a predetermined plan rather than summarizing one source at a time.

5. Writing, which was completed over several days or even weeks, showed little direct correspondence with the writer's notes. There was considerable global revision with some students completely abandoning early drafts to start anew.

6. Students did not complain about the writing task or characterized it as "fun" or "interesting."

These differences between students using high- and low-effort strategies corresponded to differences in the way the teachers of the students managed the writing assignments. Teachers of low-effort students simply specified the assigned topic and the due date. Teachers of high-effort students did one or more of the following things in addition: specified required references, required students to submit drafts, or required students to give in-class talks on their topics. Diary entries suggested that the requirement to give a talk had an important impact on the students. When he learned he would have to give a talk, one student commented, "I can't just write a paper. I've got to understand this topic."

While these observations are suggestive, they are based on a small sample in which students were not randomly assigned to conditions. For these reasons, we can't conclude with any certainty that the teachers' management of the writing assignment *caused* the students to choose high- or low-effort writing strategies. To obtain evidence of a causal connection, Nelson and Hayes (1988) conducted an experiment in a class with fourteen sections. Sections were assigned at random to one of the following four conditions:

1 Control—students were simply assigned a topic and a due date.

2. Reference—students were provided with a list of suggested references.

3. Drafts—students were required to submit drafts two weeks before the due date.

4. Talks—students were required to give in-class talks one or two weeks prior to the due date.

Analysis of the grades obtained in each condition revealed that students in the talks condition performed significantly better than control or reference students. None of the other differences was significant. Diaries collected from a random selection of students indicate that students in the draft condition did more revision than students in other conditions, that students in the talks condition were more concerned about audience than students in other conditions, and that students in the drafts and talks conditions spent more time working on their papers than students in the other conditions.

Clearly, the teacher constitutes an important part of the student's social context and can have a major impact on the student's writing process. Careful studies of other aspects of the student's social context could be very valuable.

## Conclusion

In this essay, I have proposed a checklist of factors that I feel are both important and, at least in the heat of research, easy to forget. The particular list is a very personal one, reflecting, in all probability, my own sins of omission more than any truth about the field. However, the need for such checklists is more than just personal. As researchers, we *do* become immersed in our own agendas. We *do* circumscribe too narrowly what we are willing to view as interesting.

## References


Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition.* Hillsdale, NJ: Erlbaum.

Bracewell, R., Scardamalia, M., & Bereiter, C. (1978). The development of audience awareness in writing. *Resources in Education,* (Oct.), 154-433.

Bridwell, L. S. (1980). Revising strategies in twelfth grade students: Transactional writing. *Research in the Teaching of English, 14* (3), 107-122.

Britton, J., Burgess, T., Martin, N., McLeod, A., & Rosen, H. (1975). *The development of writing abilities (11-18).* London: Macmillan Education Ltd.

Burtis, P. J., Bereiter, C., Scardamalia, M., & Tetroe, J. (1983). The development of planning in writing. In G. Wells and B. M. Kroll (Eds.). *Explorations in the development of writing* (pp. 153-174). Chichester, England: John Wiley.

Crosswhite, F. J., Dossey, J. A., Swafford, J. O., McKnight, C. C., & Cooney, T. J. (1985). *Second international mathematics study: Summary report for the United States.* Urbana: University of Illinois.

Faigley, L., & Witte, S. (1981). Analyzing revision. *College Composition and Communication, 32,* 400-414.

Graves, D. H. (1980). Research update: A new look at writing research. *Language Arts,* 57, 913-919.

Hayes, J. R., Flower, L. S., Schriver, K. A., Stratman, J., & Carey, L. (1987). Cognitive processes in revision. In S. Rosenberg (Ed.), *Advances in applied psycholinguistics, Volume II: Reading, writing, and language processing* (pp. 176-240). Cambridge, England: Cambridge University Press.

Hymes, D. (1971). Competence and performance in linguistic theory. In R. Huxley & Z. Ingram (Eds.), *Language acquisition: Models and methods.* New York: Academic Press.

Kinosita, K. (1986, May). Address at the Symposium on Document Design for Japanese Academics and Industrialists, Carnegie Mellon University, Pittsburgh, PA.

Lynn, R. (1982). IQ in Japan and the United States shows a growing disparity. *Nature, 297,* 222-223.

Morenberg, M., Daiker, D., & Kerek, A. (1978). A sentence coming at the college level: An experimental study. *Research in the Teaching of English, 12,* 245-256.

Nelson, J., & Hayes, J. R. (1988). *How the writing context shapes students' strategies for writing from sources* (Tech. Report No. 16). Berkeley, CA: University of California, Center for the Study of Writing.

Purvis, A. (1987, May). Address at the annual meeting of the American Educational Research Association, Washington, DC.

Rosenthal, R. (1976). *Experimenter effects in behavioral research* (Enlarged edition). New York: Halsted Press.

Schriver, K. (1984). *Revising computer documentation for comprehension: Ten lessons in protocol-aided revision* (Tech. Report No. 14). Pittsburgh, PA: Carnegie Mellon University, Communication Design Center.

Schriver, K. A. (1987). *Teaching writers to anticipate the reader's needs: Empirically based instruction.* Doctoral dissertation in Rhetoric, Carnegie Mellon University, Pittsburgh, PA.

Smith, W. L., & Combs, W. E. (1980). The effects of overt and covert cues on written syntax. *Research in the Teaching of English, 14*, 19-38.

Sommers, N. (1980). Revision strategies of student writers and experienced adult writers. *College Composition and Communication, 31*, 378-388.

Stevenson, H. W., & Azuma, H. (1983). IQ in Japan and the United States: Methodological problems in Lynn's analysis. *Nature, 306*, 291-292.

Stevenson, H. W., Lee, S., Stigler, J. W., Hsu, C. C., Lucker, G. W., & Kitamura, S. (1987). Classroom behavior and achievement of Japanese, Chinese, and American children. In Glaser (Ed.), *Advances in instructional psychology; Volume 3*. Hillsdale, NJ: Erlbaum.

Stigler, J. W., Lee, Y. S., Lucker, G. W., and Stevenson, H. W. (1982). Curriculum and achievement in mathematics: A study of elementary school children in Japan, Taiwan, and the United States. *Journal of Educational Psychology, 74*, 315-322.

Swan, M. B. (1977). *The effects of instruction in transformational sentence combining on the syntactic complexity and quality of college level writing*. Unpublished doctoral dissertation, Boston University, Boston, MA.

Wason, P. C. (1980). Specific thoughts on the writing process. In L. W. Gregg & E. R. Steinberg (Eds.), *Cognitive processes in writing* (pp. 129-137). Hillsdale, NJ: Erlbaum.

# NATIONAL ADVISORY PANEL
## The Center for the Study of Writing

Chair
Fred Hechinger
The New York Times Foundation

Alonzo Crim
Professor of Urban Educational Leadership
Georgia State University, Atlanta, GA

Sister Regina Noel Dunn
Teacher
Villa Maria Academy, Malvern, PA

Marcia Farr
Associate Professor of English
University of Illinois, Chicago, IL

Abraham Glassman
Chairman
Connecticut State Board of Education

Bill Honig
California Superintendent
of Public Instruction

The Honorable Gary K. Hart
California State Senator

Sibyl Jacobson
Executive Director
Metropolitan Life Foundation

John Maxwell
Exeutive Director
National Council of Teachers of English

Roy Peña
Principal
Andrews High School, El Paso, TX

Carol Tateishi
Teacher
Ross Elementary School, Kentfield, CA

Richard C. Wallace, Jr.
Pittsburgh Superintendent of Schools
and Secretary, Board of Education